

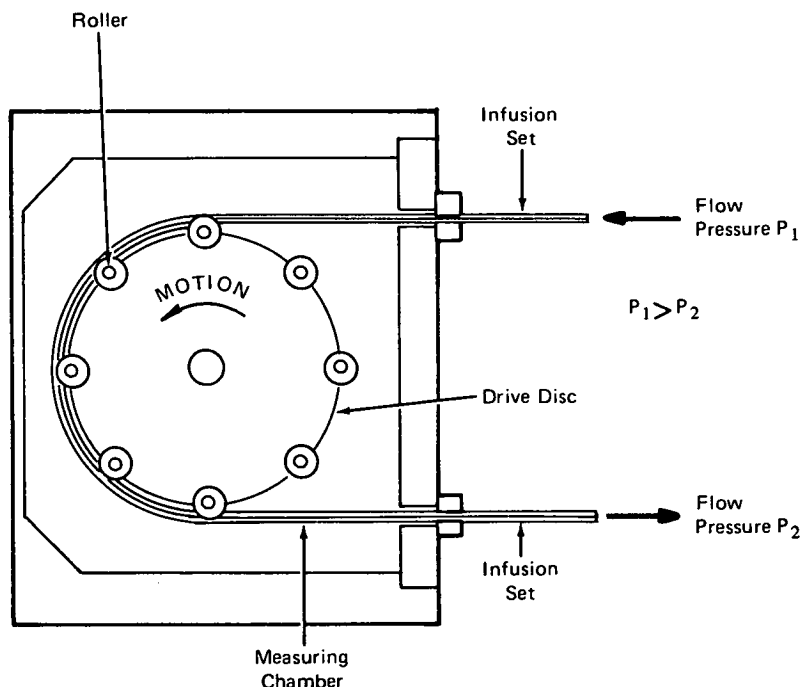
NASA TECH BRIEF

Manned Spacecraft Center



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Intravenous Fluid Flow Meter Concept for Zero Gravity Environment



The problem:

The existing intravenous fluid flow meters are not suitable for use in a zero-gravity environment. Such meters are either too bulky or dependent on gravity for proper performance.

The solution:

A peristaltic flow meter concept is suitable for zero gravity environment. This concept can be incorporated into a flow meter that will measure fluid flow rates between 100 and 600 cm³ per hour and at the same time maintain sterilization.

How it's done:

The concept is depicted as a two part system, as shown in the figure. The first part is the measuring

chamber which is incorporated in the infusion-set tubing. This arrangement insures the sterility of the fluid and eliminates the need for sterilization if the measuring chamber is part of a disposable infusion set. The second part is the peristaltic flow meter which mechanically measures the fluid flow.

Operation of the flow meter requires mechanical or pneumatic application of pressure to the intravenous fluid. This pressure will overcome frictional forces of the flow meter and cause the rollers to move in the flow direction. The rollers are connected to the drive disc which in turn is attached to the revolution counter. The inner diameter of the measuring chamber and the number of revolutions of the drive disc per unit of time determine the flow rate.

(continued overleaf)

Notes:

1. This design is in the conceptual stage only. As of the date of publication of this Tech Brief neither a model nor a prototype have been constructed.
2. No additional documentation is available.

Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to:

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